

In the Claims:

Claims 1-17 (canceled).

Claim 18 (currently amended): An interface circuit capable of connecting a modem to a telephone line, said interface circuit comprising:

a voltage-controlled current source, said voltage controlled current source including an operational amplifier having a positive input capable of being connected to a transmit signal driver of said modem, said operational amplifier having an output configured to drive a base of an electronic inductor transistor, said electronic inductor transistor capable of being connected across a rectified tip and ring voltage of said telephone line, wherein said interface circuit is configured to linearly vary a line current of said telephone line;

a second transistor, said second transistor having a base connected to a collector of said electronic inductor transistor;

wherein said second transistor provides increased isolation for said modem when said modem is on-hook.

Claim 19 (previously presented): The interface circuit of claim 18 wherein said operational amplifier has a negative input connected an emitter of said electronic inductor transistor.

Claim 20 (previously presented): The interface circuit of claim 18 further comprising a voltage divider connected to said positive input of said operational amplifier.

Claim 21 (previously presented): The interface circuit of claim 18 further comprising an impedance matching circuit connected between said positive input of said operational amplifier and a collector of said electronic inductor transistor.

Claim 22 (previously presented): The interface circuit of claim 18 further comprising a resistor connected to an emitter of said electronic inductor transistor.

Claim 23 (canceled).

Claim 24 (previously presented): The interface circuit of claim 18 further comprising a capacitor connected between said transmit signal driver and said positive input of said operational amplifier.

Claim 25 (currently amended): An interface circuit capable of connecting a modem to a telephone line, said interface circuit comprising:

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an electronic inductor transistor capable of being connected across a rectified tip and ring voltage of said telephone line;

an operational amplifier having an output configured to drive a base of said electronic inductor transistor, wherein a hookswitch is not connected between said rectified tip and ring voltage and said modem, wherein said interface circuit is configured to linearly vary a line current of said telephone line;

a second transistor, said second transistor having a base connected to a collector of said electronic inductor transistor;

wherein said second transistor provides increased isolation for said modem when said modem is on-hook.

Claim 26 (canceled).

Claim 27 (previously presented): The interface circuit of claim 25 wherein said operational amplifier has a negative input connected an emitter of said electronic inductor transistor.

Claim 28 (previously presented): The interface circuit of claim 25 further comprising a voltage divider connected to a positive input of said operational amplifier.

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Claim 29 (previously presented): The interface circuit of claim 25 further comprising an impedance matching circuit connected between a positive input of said operational amplifier and a collector of said electronic inductor transistor.

Claim 30 (previously presented): The interface circuit of claim 25 further comprising a resistor connected to an emitter of said electronic inductor transistor.

Claim 31 (canceled).

Claim 32 (previously presented): The interface circuit of claim 25 further comprising a capacitor connected between said transmit signal driver and a positive input of said operational amplifier.

Claim 33 (currently amended): A modem interface circuit capable of being coupled to a telephone line, said modem interface circuit comprising:

a DC loop current circuit having a first operational amplifier, said first operational amplifier having a first output configured to drive a first base of a first electronic inductor transistor, said first electronic inductor transistor capable of being connected across a rectified tip and ring voltage of said telephone line;

an AC current circuit having a second operation amplifier, said second operation amplifier having a second output configured to drive a second base of a second electronic

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inductor transistor, said second electronic inductor transistor capable of being connected across said rectified tip and ring voltage of said telephone line, wherein said interface circuit is configured to linearly vary a line current of said telephone line;

wherein an emitter of said second electronic inductor transistor is coupled to ground.

Claim 34 (previously presented): The modem interface circuit of claim 33 further comprising a voltage divider connected to a positive input of said first operational amplifier.

Claim 35 (previously presented): The modem interface circuit of claim 33 further comprising a resistor connected to an emitter of said first electronic inductor transistor.

Claim 36 (previously presented): The modem interface circuit of claim 33 wherein said second operation amplifier has a positive input capable of being connected to a transmit signal driver of a modem.

Claim 37 (previously presented): The modem interface circuit of claim 33 further comprising an impedance matching circuit connected between a positive input of

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said second operational amplifier and a collector of said second electronic inductor transistor.